Parcel Trench Unit Overall score (0,1, or 2)	Box Plots Q-Q Plots	Rounds of excavati on	On vs offsite lab	Suspect name (1=ye 0=no)	es, Name, if sus	Signs spect Name, if not falsify g (1=Ye 0=no	of vin es,) Signs of falsification summary workpla n (1=Y, 0=N)	w	Comments - Other	Followup needed, e.g. questions for Navy	See additional EPA mend statistical analysis for PCA (1 or 0)	Talk to group No gamma static and scan
D-2 TU031 0 KB	Bi-214 and K-40 graphs h slope breaks suggesting m populations	I Gamma Static (4 997 – 6 144 chm) ann bamma Scan itrom 4 800	Form notes, "There are three available revisions of the TU031 SUPR. The onsite lab data does not appear to change; however, the offsite lab data reported for the two samples, 3 and 14, is different in all three revisions. Eberline was used as the offsite lab in the first version and TestAmerica was used as the offsite lab for the remaining two versions. When comparing the versions where TestAmerica was the offsite laboratory, the collection date, laboratory receipt date, preparation date, and analysis date do not change however, the collection time is inconsistent, as well as the reported			J. Rosenhagen 1	Three sets of lab results, which is odd. 1	No sampler/surveyor name in SUPR.	Probably OK, some doubt due to multiple populations, unusually consistent gamma statics and gamma scan, and 3 sets of lab results.			
D-2 TU032 2 KB "Unusual distribu	variability. Form notes, tion of K-40 results. Values than surrounding TUs." Ac-228, Bi-214, and K-40 p have slope breaks indicates multiple population	ating 1 Form notes consistent.	results. Results from the most recent Form notes, "There are four available revisions of the TU032 SUPR. The onsite lab data does not appear to change; however, the offsite lab data reported for the two samples, 4 and 12, is different in the first, second, and fourth revisions. The same results are reporte in the 2nd and 3rd revisions. Eberline was used as the offsite lab in the first version and TestAmerica was used as the offsite lab for the remaining three versions. When comparing the versions where TestAmerica was the offsite laboratory, the collection date, laboratory receipt date, preparation date, and analysis date do not change Results from the most recent revision	1	R. Zahens	sky 1	 Significant inconsistencies in analytical data - and there are 4 different SUPR reports. Unusual K-40 distribution that is inconsistent with adjacent TUs. Low variability Bi-214. 	No sampler/surveyor name in SUPR.	1. Inconsistent with adjacent TUs. Form notes, "Ac-228 and Bi-214 results consistent with data collected from TU031, TU038 and TU135 K-40 results display higher mean than adjacent TU031 and TU038, but are consistent with TU135 Ac-228 and Bi-214 results below 0 also observed at TU038." 2. Resample due to inconsistencies, low variability Bi-214.			
D-2 TU034 2 KB Bi-214 ha	Bi-214 and K-40 graphs h slope breaks suggesting m populations. Some K-40 r elevated compared to re data set.	results." 2. Gamma scan has very low range (800 cpm), form notes,	Inconsistences. Form notes, "There are three available revisions of the TU034 SUPR. The onsite lab data does not appear to change; however, the offsite			P. Vigil 1	Unusually low range for gamma scan, which is inconsistent with the gamma static data. 1	No sampler/surveyor name in SUPR.	Resample due to low variability Bi-214, evidence of multiple populations, unusually low range for gamma scan, inconsistent gamma scan and gamma statics, and the fact that there are 3 versions of the SUPR that provide inconsistent off-site lab results. Form notes evidence of falsification of gamma statics, but should have caught the unusually low range for the gamma scan.			
D-2 TU035 2 KB Bi-214 ha	Bi-214 and K-40 graphs he slope breaks indicating me populations. However, the notes, "The K-40 FSS resule include multiple date populations, but this is reflected in the Ac-228 or data."	ultiple e form ts may a form tan	Four versions of SUPR; off-site lab results vary. Form also notes, "One confirmatory/biased sample (117) and two final systematic samples (126 and 129) were sent to the offsite laboratory	0		C. Schultz 1	1. Two samples analyzed on different days than the rest of the FSS samples (one the day before, the other 3 days later than the rest), which suggests potential for switching out samples. 2. Form notes, "There are four available revisions of the TU032 SUPR. The onsite lab data does not appear to change; however, the offsite lab data reported for the three samples, 117, 126 and 129, is different in the first, second, and fourth revisions. The same results are reported in the 2nd and 3rd revisions. Eberline was used as the offsite lab in the first version and TestAmerica was used as the offsite lab for the remaining three versions. When comparing the versions where TestAmerica was the offsite laboratory, the collection date, laboratory receipt date, preparation date, and analysis date do not change."	No sampler/surveyor name in SUPR.	Resample due to low variability Bi-214, evidence of multiple populations, analysis of 2 FSS samples on different days, the fact that there are 4 versions of the SUPR that provide inconsistent off-site lab results.			
D-2 TU038 0 KB	Ac-228, Bi-214, and K-40 p have slope breaks indic multiple population	ating 1	does not appear to change; however, the offsite lab data reported for the two samples, 2 and 17, is different in the first, second, and fourth revisions. The same results are reported in the 2nd and 3rd revisions. Eberline was used as the offsite lab in the first version and TestAmerica was used as the offsite lab for the remaining three versions. When comparing the versions where TestAmerica was the offsite laboratory the collection date, laboratory receipt			P. Vigil 0						
D-2 TU134 2 KB variability and a lo samples. FSS_SY	4, Bias samples have lower ower mean than the FSS_SYS FSS_Bias have slope brown ariability. K-40 and Ac-228 FSS_SYS FSS_Bias have slope brown indicating multiple populations.	eaks 1 Scan, form notes, "Gamma scan performed on 04/21/2009 at		Form notes for Ac-228, " Final systematic samples indicate the potential for different data populations."	A. Smith	1	Form notes, "Based on the findings of this evaluation, evidence of potential data falsification was identified in the gamma static 1 measurements."	No sampler/surveyor name in SUPR.	Resample due to low variability Bi-214, bias samples having lower mean and variability than FSS_SYS, evidence of falsification of gamma statics, and evidence for multiple populations in K-40 and Ac-228 datasets.			
UC-1 TU133 2 KB Bi-214 and K-40 FS	K-40 plots for SYS, Bias, char different slopes and FSS_S slope breaks, indicating m populations. This appear the case for Ac-228 and Bi- well, but the variability is so it is harder to disting	SYS has nultiple is to be 2 Gamma static measurements covered a relatively low range214 as lower,		1	C. Bell	1	Failure to collect samples from bottom of trench to delineate due to contamination in 4 of 7 pipe segments, allegedly due to presence of native rock; however, this problem was not noted for any of the other characterization, SYS, or bias samples.	 Did not collect characterization samples from bottom of trench to address contamination in pipe segments. No sampler/surveyor name listed in SUPF 	 Required characterization samples (due to detection of Cs-137 in 4 of 7 samples from pipe sediment) were not collected along the bottom of the trench, allegedly due to presence of native rock. This was a flag for the Navy to select other TUs for resampling. Not clear why this one was not. Resample due to multiple populations, low variability FSS_SYS for K-40 and Bi-214, and failure to sample bottom of trench. 			
$1 \ 11C_{-1} \ 1 \ T11139 \ 1 \ 2 \ 1 \ RR \ 1 \ - \ $	Low variability Ac-228 and les had low variability, and r than the Bias samples populations.	Bi-214. Bi-214. Bi-as had Form notes, "Gamma static measurements ranged between 3,920 and 4,485 cpm – an abnormally narrow range for in situ measurements for heterogeneous soil in a deep trench geometry. The range of gamma static measurements are		1	A. Smith	1	2 FSS Samples counted 4 days after the rest, suggesting the potential for substitution. 2. Form notes, "Based on the findings of this evaluation, evidence of potential data falsification was identified in the gamma static measurements." 1	No sampler/surveyor name in SUPR. No reviewer signature for gamma statics.	Resample due to evidence for falsification of gamma statics (narrow range, inconsistent with FSS data), analysis of 2 samples 2 days after the rest, and evidence for multiple populations in Ac-228, Bi-214, and K-40 data sets.			
UC-1 TU146 2 KB Bi-214 FSS_SYS	K-40 FSS_SYS plot has sl had very low variability. breaks indicating multi populations		r	1	C. Bell	1	Form notes, "Based on the findings of this evaluation, evidence of potential data falsification was identified in the gamma static 1 measurements."	 Required characterization samples not collected from bottom of trench. No sampler/surveyor name in SUPR. 	 Required characterization samples (due to detection of Cs-137 in 5 of 6 samples and Ra-226 in 1 of 6 samples of pipe sediment) were not collected along the bottom of the trench, allegedly due to presence of native rock. Problem was not noted for collection of other samples. This was a flag for the Navy to select other TUs for resampling. Not clear why this one was not. Resample due to evidence of falsification of gamma statics, low variability Bi-214, multiple populations of K-40, and failure to collect required characterization samples from the bottom of the trench. 			
UC-3 TU170 2 KB 2. Form notes, "Dif	For Ac-228, Bi-214, and B FSS_SYS and bias plots different slopes, indica different populations. Ac- potential for two data sets." 214, and K-40 FSS_SYS and plots have slope brea indicating multiple popul	Static survey has lower variability than expected. Gamma scar survey performed before collection of FSS samples, suggesting potential that samples were collected from areas with lower activity.		1	R. Robers	on 1	One FSS sample was counted 3 days after all of the others, suggesting potential substitution.	 No sampler/surveyor name in SUPR. Static survey date and time were not provided in the SUPR. 	Resample due to potential substitution of one sample (counted 3 days later), low variability static survey, gamma scan completed before FSS samples collected, low variability B-214 FSS_SYS, and multiple lines of evidence for at least two different populations in the data set.			
UC-3 TU172 0 KB 2. Form notes, "	variability Bi-214 FSS_SYS. K-40 has a high standard deviation." Bi-214 and K-40 plots have breaks indicating multiple populations. Form notes shows multiple soil concentration population	e slope iple , "K-40 1 I ons."	Inconsistent due to 6 samples from onsite lab having 0 or negative results for Bi-214, Ac-228, and K-40	1	C. Bell	0	1	No sampler/surveyor name in SUPR.	Form notes, "RASO has identified bedding sands high in NORM in Parcel UC-3, when excavations remove all the bedding sand, changes between subsequent excavation layers can be dramatic." This may explain the multiple populations.			
	K-40 plot has slope bre indicating multiple populs as low variability. Ac-228 may also have sl breaks but data set has variability so it is difficult	Gamma static form was undated. Static range 3,298–4,299 cpm Gamma static data was inconsistent with scan data." Form notes for gamma scan, "Scan Range 5,480–7,290 cpm, with an investigation level of 7,401 cpm. Gamas scan data inconsistent	offsite results exceeds onsite x10. ES15	Form notes for Ac-228 and Bi-214, "Final systematic samples indicate the potential for at least two different data populations."	A. Smith		One FSS sample was counted 3 days after all of the others, suggesting potential substitution. Form notes, "evidence of potential data falsification was identified in the gamma static measurements." 1	No sampler/surveyor name in SUPR.	Resample due to potential substitution of one sample (counted 3 days later), low variability static survey that was inconsistent with the gamma scan data, low variability B-214 FSS_SYS, and evidence multiple populations in the data set.			
UC-3 TU174 UC-3 TU176 UC-3 TU178 UC-3 TU179				1 1 1	C. Bell C. Bell C. Bell C. Bell							
UC-3 TU179 UC-3 TU180 UC-3 TU181 UC-3 TU182				1 1 1	A. Smith R. Robers C. Bell	on						
UC-3 TU183 UC-3 TU185 UC-3 TU187				1 0 1	C. Bell	C Hughes						
UC-3 TU188 UC-3 TU189				1 1	C. Bell							

Summary of EPA review of Parcel UC-1.2.3 and D-2 Trench Units - Interim Draft [Insert date]

Number of TU's					% of Parcel UC's	
Number of 10 s				& D-2 total		
Parcel D-2	Parcel UC-1	Parcel UC-2	Parcel UC-3	Total		
7	12	8	21	48	100%	Total trench units in Parcel UC's & D-2
avy reviewe	d 70 total Tren	ch Units to loo	k for signs of	potential fals	ification	
4	3	0	16	23	57%	Navy recommended confirmation sampling due to signs of potential falsification
2 0 0 0 2		2	29%	Navy recommended reanalysis of archived samples		
1 9 8 5 23		23	14%	Navy recommended NFA = No further action due to signs of falsification, but potential further action due to uncertainty		
PA reviewea	the 23 Trench	Units recomm	ended for NFA	4		
				0	0%	EPA score 0 = No specific findings of particular concern
				0	0%	EPA Score 1 = Need further review
0		0	0%	EPA Score 2 = Need resampling before determination that the record supports ROD requirements met		
1	9	8	5	23	100%	Not yet reviewed
tal Navy ar	nd EPA recomm	end for resam	pling		•	
4	3	0	16	23	57%	

4	3	0	16	23	57%
_	_	_	_	•	
Trench Unit					Overall score (0,
Tremen onic					1, or 2)
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Draft Interim EPA and DTSC review of Parcel UC-1,2,3 & Parcel D-2 Rad Data Eval

	Trench	Fill	Building Sites	Total	% of total
Tota Survey Units in Parcels UC-1,2,3 & D-2	48	80	0	128	100%
Navy recommended resampling	23	55	0	78	61%
Navy recommended reanalyzing archived samples	2	0	0	2	2%
EPA, CDPH, DTSC recommend resampling			0	0	0%
Total recommended resampling	23	55	0	78	61%
No signs of falsification found in data			0	0	0%
EPA not yet reviewed			0	0	0%
% of total recommended resampling	48%	69%	0%	61%	

The above was for Parcel B alone. Below is for entire Shipyard.

Total Survey Units in Hunters Pt Tetra Tech EC	305	514	*
Parcels D-2 & UC-1,2,3 as % of total	16%	16%	*

^{*} Parcel B has 7 former building sites, which is 21% of the total 34. The above chart shows survey units at building sites.

The number of survey units at building sites for the entire site was not available.

Breakdown for Fill

Total	% of total	D-2	UC-1	UC-2	
80	100%	5	26	20	Tota Survey Units in Parcels UC-1,2,3 & D-2
55	69%	4	14	13	Navy recommended resampling
0	0%	0	0	0	Navy recommended reanalyzing archived samples

Total % of total

	T		I			
			>=2			
Trench	No gamma static	Weight	results			
Unit	and scan	difference	Zero or			
			negative			
66	16	5	30	0	0	0
100%	24%	8%	45%	0%	0%	0%
TU001	1		1			
TU002	1		1			
TU003	1		1			
TU004	1		1			
TU005	1					
TU006	1		1			
TU007	1	1	1			
TU008	1					
TU009	1					
TU010	1					
TU011	1					
			1			
TU012	1		1			
TU013	1		1			
TU014	1					
TU015						
TU016	1					
TU017						
TU018			1			
TU019	1	1	1			
TU020	1		1			
TU021			1			
TU022			1			
TU023			1			
TU024			1			
TU025						
TU026						
TU027						
TU028			1			
TU029						
TU030						
TU033			4			
TU036			1			
TU037						
TU039			1			
TU040		1	1			
TU041						
TU042			1			
TU043						
TU044		1				
TU045			1			
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TU056			1			
TU058			1			
TU060		1	1			
TU061			1			
TU062						
TU062						
TU063						
TU064			1			
TU065						
TU125			1			
TU126			_			
TU127						
TU128						
10120			<u> </u>		<u> </u>	<u> </u>
TU59		1				
1033		1				

Parcel	Trench	Suspect name	Name, if suspect	Name, if not suspect
	Unit	(1=yes, 0=no)	•	
D-2	TU031	0		J. Rosenhagen
D-2	TU032	1	R. Zahensky	
D-2	TU034	0		P. Vigil
D-2	TU035	0		C. Schultz
D-2	TU038	0		P. Vigil
D-2	TU134	1	A. Smith	
UC-1	TU133	1	C. Bell	
UC-1	TU139	1	A. Smith	
UC-1	TU146	1	C. Bell	
UC-3	TU170	1	R. Roberson	
UC-3	TU172	1	C. Bell	
UC-3	TU173	1	A. Smith	
UC-3	TU174	1	C. Bell	
UC-3	TU176	1	C. Bell	
UC-3	TU178	1	C. Bell	
UC-3	TU179	1	C. Bell	
UC-3	TU180	1	A. Smith	
UC-3	TU181	1	R. Roberson	
UC-3	TU182	1	C. Bell	
UC-3	TU183	1	C. Bell	
UC-3	TU185	0		C Hughes
UC-3	TU187	1	C. Bell	
UC-3	TU188	1	C. Bell	
UC-3	TU189	1	C. Bell	